Remarks/Arguments:

Claims 1 - 22 are pending in this application. Applicants elect Group I (claims 1 - 10), without traverse. Therefore, claims 1 - 10 are currently being prosecuted in this application and claims 11 - 22 have been withdrawn.

Claims 9 and 10 were rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Claims 9 and 10 have been amended to overcome these informalities.

Claims 1 - 8 stand rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,262,375 ("McKedy '375") or U.S. Patent No. 6,248,690 ("McKedy '690") or U.S. Patent No. 6,209,289 ("Cullen"). Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as unpatentable over McKedy '375 or McKedy '690 or Cullen in view of one of ordinary skill in the art. Claims 9 and 10 stand rejected under 35 U.S.C. § 103(a) as unpatentable over Cullen in view of McKedy ''375 or McKedy '690. Claims 1 - 10 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 6,133,361 ("Hatakeyama") or U.S. Patent Application Publication 2003/0042166 A1 ("Waterman"), now U.S. Patent No. 6,688,468. It is respectfully submitted that the currently pending claims, as amended, are patentable over the art of record for the reasons set forth below.

Features of Amended Claim 1

Applicant's invention, as recited by amended independent claim 1, includes features which are neither disclosed nor suggested by the art of record, namely:

> ***a humectant salt solution; and***
>
> ***an electrolyte salt which is different than said humectant salt in said humectant salt solution;***
>
> ***said carrier, humectant salt, and electrolyte salt present in amounts sufficient to reduce the water activity of the composition to below 0.6.*** . . . . (emphasis added).

Applicant's claimed device is an oxygen absorbing composition comprising at least one oxygen reducing agent, a carrier, a humectant salt solution, and an electrolyte salt which is different than the humectant salt in the humectant salt solution. These components are present in the composition in sufficient amounts to reduce the water activity of the composition to below 0.6. Claim 1 has been amended to more clearly indicate that the claim requires a composition including a humectant salt solution in addition to an electrolyte salt that is different from the humectant salt used to produce the humectant salt solution. Support for this amendment is found throughout the specification, including the examples. Claims 9 and 10 have also been amended to more clearly indicate that the claimed compositions may include forms of iron other than electrolytic iron, as the use of electrolytic iron is not necessary for patentability.

It is the interaction between the oxygen reducing agent, the humectant salt solution, and the additional salt - the electrolyte salt, which allows the composition to reduce oxygen levels in low humidity environments and further, to maintain the reduced oxygen levels in these low humidity environments.

The invention has the advantage of providing a composition to overcome the competing forces of a dry environment, which is necessary for a product to exist, and a moist environment which the oxygen scavenger needs in order to absorb oxygen. As noted in Applicant's specification at page 8, "after enclosure of the container following packaging, oxygen is quickly removed from the container's inner environment, despite there being a very dry environment within the container. Heretofore, such dry environments meant poor oxygen absorption."

Response to Prior Art Rejections - McKedy '375, McKedy '690, and Cullen

McKedy '375 was relied upon for its alleged teaching of a composition that contains electrolytically reduced iron, a salt such as sodium chloride, and optionally a water-attracting and supplying component such as silica gel. Further, the Office Action asserts that the formulations of Example 3 of the McKedy '375 patent are "deemed to have a water activity (*i.e.* equilibrium relative humidity (ERH)) that are no higher than applicant's claimed maximum amount even though the patent does not expressively state what the water activity is for the taught oxygen absorbing compositions."

Applicant has amended claim 1 and respectfully traverses the rejections of this claim. Amended claim 1 requires not only an oxygen reducing agent, a carrier, and an electrolyte salt, but also a humectant salt, which is different than the electrolyte salt. None of the cited references disclose, teach or suggest an oxygen absorbing composition requiring a humectant salt solution and an electrolytic salt which in combination reduce water activity of the composition to below 0.6.

Contrary to the Office Action's assertions, the cited references cannot achieve a reduction in water activity within the claimed range based on the concentrations of salt disclosed in the references. The concentration of salt in all of the prior art cited in the Office Action falls within the range of 0.4 - 3.5%. Although this is sufficient to begin oxygen adsorption, these concentrations are insufficient to achieve the water activity as claimed. Rather, given the general compositions stated, the amount of salt one would need to even begin water activity would need to be at least 25% on a moisture basis.

There is simply no teaching or suggestion in the cited art to combine the elements as currently claimed to produce a composition capable of lowering water activity to below 0.6 as claimed. Indeed, the cited references were not even concerned with the problem solved by the currently claimed invention. Applicant contends therefore that Applicant's claim 1 is clearly patentable over the references of record. Claims 2-8 are also patentable at least for the same reasons that claim 1, on which they are dependent, is patentable, but may be separately patentable for additional reasons as well.

The Office Action rejects claims 9 and 10 as obvious over McKedy '375 or McKedy '690, or Cullen in view of ordinary skill in the art. Applicant respectfully submits that claims 9 and 10 are patentable over the references for the following reasons.

The Office Action admits that McKedy '375 and McKedy '690 differ from Applicant's claimed invention because they do not teach oxygen absorbing compositions "that contains [sic] all of applicant's claimed components *within applicant's claimed concentration ranges."* (emphasis in original). However, the Office Action states it would have been obvious for one skilled in the art to use the disclosures "as very strong motivation" to actually make compositions comprising Applicant's components within Applicant's claimed ranges. There is absolutely no motivation in any of the cited references to do that which was done to achieve the presently claimed invention.

None of the prior art cited in the Office Action teaches, discloses or suggests a composition including an oxygen reducing agent, a humectant salt solution, and an electrolyte salt which is different than the humectant salt in the humectant salt solution, to achieve and maintain the reduced oxygen levels disclosed by Applicant.

Note, for example, column 5, lines 3-15, of the '289 Cullen Patent, which specifically talks about the fact that the composition is dry, and therefore inactive, until "placed in a container or environment containing sufficient moisture that the water-attracting component will attract moisture and thus provide sufficient water to initiate" the oxygen absorption. Indeed, this reference is concerned with the oxygen absorber gaining necessary moisture from the humid environment into which it is placed, a situation specifically and explicitly avoided in the currently claimed invention. Indeed, the current invention is concerned with avoiding the very circumstance relied upon for success in the '289 Cullen Patent. Thus, this reference teaches away from that which is currently claimed.

Similarly, neither the '375 or '690 McKedy patents teach or suggest that which is currently claimed. These references, although dealing with the concept of oxygen absorption in dry environments, do not address or deal with controlling the water activity of the composition as claimed. Specifically, it is the interaction of each of the components currently claimed, in the amounts claimed (namely the oxygen reducing agent, the humectant salt solution, and the electrolyte salt which is different than the humectant salt in the humectant salt solution), that achieve and maintain reduced oxygen levels in low humidity environments.

Response to Obviousness Rejection - Hatakeyama and Waterman

The Office Action rejects claims 1 - 10 as obvious over Hatakeyama or Waterman in view of one of ordinary skill in the art. As to the Office Action's reliance on Waterman and Hatakeyama, Applicant submits that the Patent Office is relying on improper hindsight gleaned from the current disclosure. After admitting that neither of these references teaches an oxygen absorbing composition that actually comprises a carrier material which is water-absorbing/controlling, the Office Action then leaps to a conclusion of obviousness. At best Waterman teaches a desiccant, such as silica gel, in combination with an oxygen absorber. There is simply no motivation to expand this to that which is currently claimed, namely a humectant salt in solution and a separate electrolyte salt which is different than the humectant salt in the humectant salt solution.

According to the Office Action, Hatakeyama discloses an oxygen-absorbing composition for a low humidity environment including a reduced metal and an accelerator, which may have at least one of a metallic iodide salt and a metallic bromide salt. Further, the Office Action states that Waterman discloses pharmaceutical kits that reduce or prevent oxidative degradation by incorporating an oxygen absorber into a sealed oxygen permeable container. The composition includes a reduced metal and an accelerator, which may include a metallic iodide salt and a metallic bromide salt. The Office Action asserts that it would have been obvious to one having ordinary skill in the art "to use the disclosure of either reference as strong motivation to actually incorporate a water absorbing/releasing carrier material into the oxygen absorbing compositions . . . because such addition is strongly suggested by the disclosure of each reference. The Patent Office is respectfully requested to specifically point to this strong suggestion in order to support its purported *prima facie* case.

Furthermore, applicant's claimed water activity for the oxygen absorbing compositions of claims 1 - 8 are deemed to be inherently met by the oxygen absorbing compositions disclosed by both patents even though they do not expressly state what the water activity is for their disclosed oxygen absorbing compositions. (See Office Action, page 12). This inherency cannot be supported where the claimed composition is itself not disclosed. Indeed, the Office Action admits that the precise compositions claimed are not met by the cited references. Inherency of function cannot then follow.

Applicant's invention is able to achieve reduced oxygen levels in low humidity environments at a water activity below 0.6 because of the interaction of each of the constituents of its composition, particularly the oxygen reducing agent, the humectant salt solution, and the electrolyte salt which is different than the humectant salt which is in the humectant salt solution. Although the concentrations of the particular components individually may be disclosed and one might be able to create an oxygen reducing composition from the prior art within Applicant's claimed ranges, the Office Action fails to appreciate that Applicant's invention is not only an oxygen scavenger, but it is also a humectant system. Therefore, the interaction required by the components present in Applicant's claimed invention must achieve not only reduced oxygen levels, but also achieve reduced oxygen levels in low humidity environments and maintain them there. Neither Hatakeyama nor Waterman contemplate this problem, and therefore one of ordinary skill in the art would not be motivated to use the disclosures to reach Applicant's invention. In addition, claim 1 also requires the additional feature of reducing water activity to below 0.6, which is not taught, disclosed or suggested by either of the references, much less the compositions as claimed.

Conclusion

The Office Action merely asserts, without citations to any art, that there would be "motivation" for one of ordinary skill in the art to achieve the invention as claimed. On the contrary, the cited references do not even recognize the problem of reducing oxygen in such low humidity environments as Applicant's specification contemplates and its claimed compositions achieve.

As the Office Action admits, "1) there is no direct disclosure to the use of applicant's electrolytic iron oxygen absorber compound, and 2) there is no direct teaching to oxygen absorbing compositions that contains all of applicant's claimed components *within applicant's claimed ranges.*" (emphasis in original) (See Office Action, page 8). Applicant contends that for these very reasons Applicant's claimed invention is not obvious. The Office Action fails to appreciate the importance of the interactions of its several components, including their respective concentrations, as required by Applicant's claims to achieve reduced oxygen levels *and* create a consistently maintained equilibrium relative humidity in the vessel in which the scavenger is placed.

Although one of ordinary skill in the art might be able to see the individual elements of the current claims in the combined prior art, there is no suggestion or motivation to combine and modify the teachings of the references to create a composition to achieve reduced oxygen levels in low moisture environments. The Office Action notes that while Cullen intends to use its oxygen absorbing compositions in high moisture environments, it is "irrelevant" that Applicant's intention is to use its oxygen absorbing composition in a low moisture environment. (See Office Action, page 8). Not only is it not irrelevant, it is strong evidence that one of ordinary skill in the art would not be motivated to use the Cullen reference in combination with either of the McKedy references to create a composition within Applicant's claimed range to achieve the result of reduced oxygen levels using a humectant system in low relative humidity environments.

Applicant contends therefore that Applicant's claims 1 - 10 are clearly patentable over the references of record.

In view of the amendments and arguments set forth above, Applicant contends that claims 1-10 are in condition for allowance. An interview with the Examiner in charge of this application is requested to discuss any remaining issues which might preclude a Notice of Allowance.

Respectfully submitted,

Jonathan H. Spadt; Reg. No. 45,122
James C. Abruzzo; Reg. No. 55,890
Attorneys for Applicant

JCA/dlk

Dated: April 4, 2005

☒ P.O. Box 980
Valley Forge, PA 19482
(610) 407-0700

☐ P.O. Box 1596
Wilmington, DE 19899
(302) 778-2500

The Commissioner for Patents is hereby authorized to charge payment to Deposit Account No. **18-0350** of any fees associated with this communication.

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on:

April 4, 2005

Debra L. Kelly-Pagan